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REMARKS

I.   Introduction

In response to the Office Action dated May 9, 2006, claim 16 has been amended. Claims 1, 3-18, and 20-30 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II.   Allowable Subject Matter

In paragraph 6, the Office Action indicates that claims 1, 3-15 and 28 are allowed. The Applicants thank the Examiner for allowance of these claims.

In paragraph 7, the Office Action indicates that the subject matter of claims 20, 22, and 24-27 would be allowable if written in independent form including all of the limitations of the base claim and any intervening claims. The Applicants acknowledge the Office Action's indication of allowable subject matter, but traverses the rejection of claim 16, upon which claims 20, 22, and 24-27 depends for the reasons below. Should the rejection of these claims be maintained, the Applicants will make suitable amendments to present the allowable claims in independent form.

III.   Claim Amendments

Applicants' attorney has made amendments to the claims as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims.

IV.   Examiner Interview

Reference is hereby made to a telephone interview between Applicants' attorney Victor G. Cooper, and Examiner Min Jung in connection with the present patent application, in which the patentability of claim 16 over the Arazi reference was discussed --- specifically, whether Arazi disclosed controlling the amount of null data in the statistically multiplexed data stream to permit the substitution of auxiliary data in the statistically multiplexed datastream. The Applicants' attorney thanks Ms. Jung for her gracious help in discussing the Applicants' claims and the Arazi reference.

It was suggested and agreed that Arazi does not disclose controlling amount of null data statistically multiplexed data stream to permit the substitution of at least some of the auxiliary data,

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but rather, disclosed a circuit that monitored the amount of null data in the data stream, and performed the substitution of auxiliary data for null data when there was at least N null data packets in the statistically multiplexed data stream. FIG. 2 illustrates a circuit that performs this function. Nonetheless, it was also agreed that the claim could more clearly describe the above features, and the Applicants' attorney agreed to present claim amendments to clarify the scope of the claim.

V.   The Cited References and the Subject Invention

A. The Arazi Reference

U.S. Patent No. 5,966,120, issued October 12, 1999 to Arazi et al. discloses a method and apparatus for combining and distributing data with pre-formatted real-time video. It also discloses a system for providing efficient constant bit rate distribution of variable bit-rate encoded video programs while facilitating the distribution of encoded video programs, along with Auxiliary Data of a general character, to one or more receivers. At a particular receiver, a customized augmented video program is created by inserting selected portions of the Auxiliary Data into a selected encoded video program. The encoded video portion of the augmented video program can be transmitted, decoded and displayed in real time, while the Auxiliary Data need not be transmitted in real time but can be stored locally at the receiver for real-time presentation at a later time. Real time presentation might include insertion into the video program while non real-time presentation might include insertion into non-video applications separate from the video program.

B. The Citta Reference

U.S. Patent No. 5,461,619, issued October 24, 1995 to Citta et al. discloses a system for multiplexed transmission of compressed video and auxiliary data. The television signal transmission system comprises a multiplexer for combining a compressed video data signal and one or more auxiliary data signals to form a multiplexed signal for transmission over a channel of fixed bandwidth. The multiplexer is controlled to vary the ratio of the components comprising the multiplexed signal to insure satisfactory reproducible image quality in response to the received compressed video data signal. The compressed video data signal may be buffered prior to combination with the auxiliary data, in which case the multiplexer is also further controlled to vary the ratio of the components comprising the multiplexed signal to maintain the fullness of the buffer at an acceptable level.

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VI. Office Action Prior Art Rejections

In paragraph 2, the Office Action rejected claims 16, 18, and 21 under 35 U.S.C. §102(b) as anticipated over Arazi et al. (Arazi), U.S. Patent No. 5,966,120.   Applicants respectfully traverse these rejections.

According to the Office Action, Arazi teaches "controlling an amount of null data in the statistically multiplexed data stream to provide sufficient null data to permit the substitution of at least some of the auxiliary data in the statistically multiplexed stream" as follows:

> FIG. 2 illustrates Auxiliary Data Insertion Controller 200 in greater detail. The Primary Video Data Stream is sent to a Fill Packet Detector 210 and a Data Packet Detector 220, which provide active enable outputs upon detection of fill packets and data packets, respectively. The outputs of Fill Packet Detector 210 and Data Packet Detector 220 are sent to the set and reset terminals respectively of SR Flip Flop 230, which provides an inverted output of logical 1 output when the Primary Video Data Stream consists of a data packet and a logical 0 when the Primary Video Data Stream consists of a fill packet. In alternative embodiments of the present invention, those of ordinary skill in the art will recognize that other designs may reverse the polarities of the various signals described above and in the following.
>
> The output of Flip Flop 230 is sent to OR logic 235 together with an output of Comparator 250. As will be described below, the output of Comparator 250 is a logical 1 when the fill packet length is sufficiently long to allow replacement of fill packet data by Auxiliary Data. Thus, initially, before a fill packet is detected, the output of OR logic 235 is a logical 1, which resets the output of Counter 240 to zero, and since 0 is less than N, the assumed size of all packets of auxiliary data, the output of Comparator 250
>
> is a logical 0. Then, when a fill packet is first detected by Fill Packet Detector 210, it will set the SR Flip Flop 230, thereby causing the inverted output of the SR Flip Flop to become a logical 0. Next the output of OR gate 235 will change from logical 1 to logical 0, since both of its inputs are now 0, and this will cancel the reset of Counter 240, thereby enabling it to begin counting. The counter will continue incrementing until one of two conditions occur. The first condition is satisfied if Data Packet Detector 220 detects a next data packet, causing SR Flip Flop 230 to reset, thereby causing OR gate 235 to output a logical 1, thereby causing Counter 240 to reset to 0. The second condition is satisfied if the output of Counter 240 becomes equal to N. This causes Comparator 250 to output a logical 1 to SR Flip Flop 270 to direct Program/Auxiliary Data MUX 280 to replace the fill packet with Auxiliary Data. If the duration of the fill packet is at least N cycles, then at least one Auxiliary Data packet can be inserted into the bit stream (assuming that all Auxiliary Data packets are N cycles in duration). That is, the purpose of the Flip Flop 270 is to measure a fixed time interval of exactly N cycles and to output a replace packet enable signal during this time interval for signaling the Program/Auxiliary Data MUX 280 to select data from the Auxiliary Data Storage 130 (via Buffer 290) instead of the Primary Video Data Stream. The multiplexing of Auxiliary Data continues for N cycles, at which time an entire Auxiliary Data packet has been inserted and the Flip Flop 270 is reset, via N-Cycle Delay Counter 260, to indicate completed multiplexing of an N-cycle Auxiliary Data packet and to suspend further multiplexing at Program/Auxiliary Data Multiplexer 280. The logical 1 output of Comparator 250 is also sent through OR logic 235 to reset Counter 240, which in turn causes the output of Comparator 250 to return to a logical 0 state, thereby enabling Counter 240 to begin measuring the duration of the next fill packet interval. Although Flip Flop 270 and Counter 240 are reset upon the occurrence of an N-cycle fill packet interval, it will be readily appreciated that the above-described counting and multiplexing process will continue to multiplex Auxiliary Data into the Primary Video Data Stream until a data packet is detected in the Primary Video Data Stream by Data Packet Detector 220.

The foregoing text describes the operations of the circuit shown in FIG. 2, which is reproduced below:

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FIG. 2
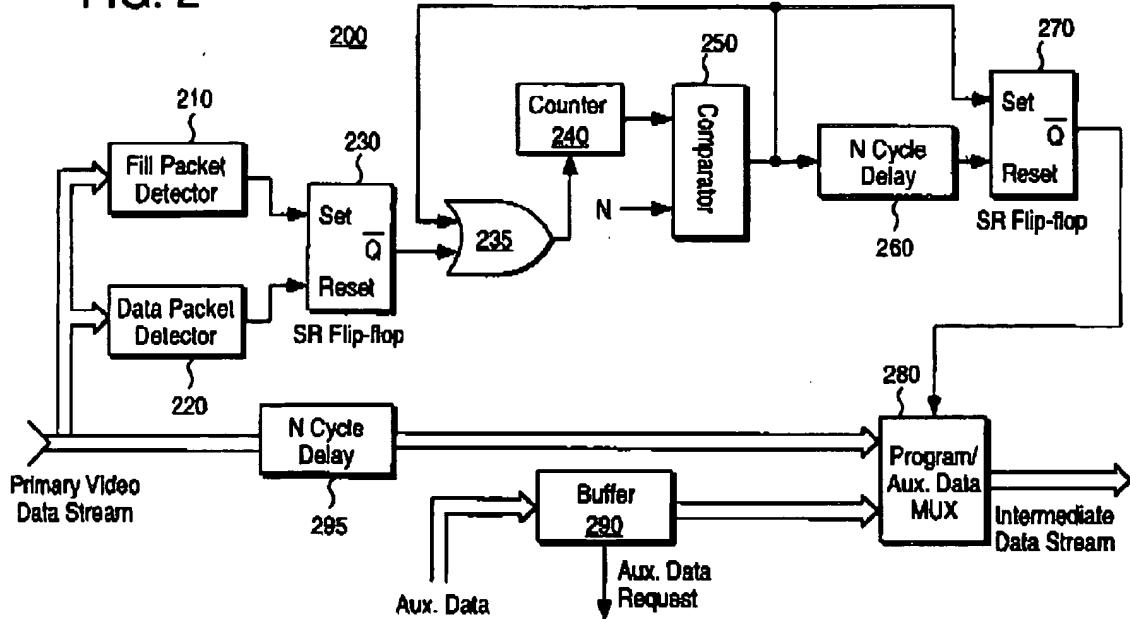
However, the circuit in FIG. 2 does not control the amount of null data in a statistically multiplexed data stream to provide sufficient null data to permit the substitution of at least some of the auxiliary data for the null data in the statistically multiplexed data stream. Instead, the above circuit implements a counter that counts the number of consecutive null packets, compares the counted number to a value N, and if at least N consecutive null packets are counted, permits the substitution of auxiliary data for the null data. In other words, it does not control the amount of data in the statistically multiplexed data stream before the substitution takes place ... it *monitors* the number of null packets and only inserts auxiliary data when the number of consecutive null data packets meets or exceeds N.

Believing perhaps the confusion is due to the order in which claim 16's clauses are presented, the Applicants have amended claim 16 to expressly recite that the control of the null data occurs prior the substitution of the auxiliary data for the null data.

In paragraph 4, the Office Action rejected claim 23 under 35 U.S.C. §103(a) as unpatentable over Arazi, U.S. Patent No. 5,966,120. The Applicants traverse this rejection for the reasons recited above.

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In paragraph 5, the Office Action rejected claims 17, 29, and 30 under 35 U.S.C. §103(a) as unpatentable over Arazi, in view of Citta et al (Citta), U.S. Patent No. 5,461,619. Applicants respectfully traverse these rejections, also for the reasons recited above.

VII.   Dependent Claims

Dependent claims 3-15, 17, 18, 20-27, and 30 incorporate the limitations of their related independent claims, and are therefore patentable on this basis. In addition, these claims recite novel elements even more remote from the cited references. Accordingly, the Applicant respectfully requests that these claims be allowed as well.

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VIII.   Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,
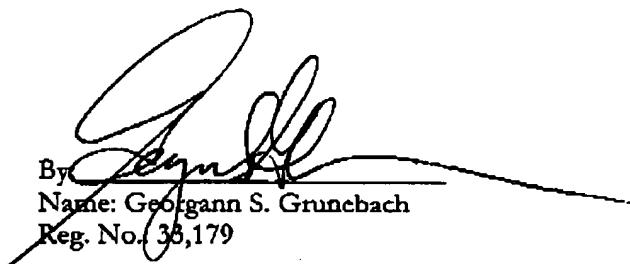
Date: August 9, 2006

By
Name: Georgann S. Grunebach
Reg. No. 38,179

The DIRECTV Group, Inc.
CA/LA1/A109
2230 E. Imperial Highway
P. O. Box 956
El Segundo CA 90245

Telephone No. (310) 964-4615

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